



## Design in a digital environment

*BLA students from Lincoln University explore the world of CAD and animation software.*

***Above left and right: Grant Bailey experimenting with a combination of CAD and animation software***

***Opposite top: Johnny Then's Gold Loop fountain***

***Opposite middle: Corene Higgins exploring public urban spaces***

***Opposite bottom: Dan Baffsky observed the ease with which the 3D model can be manipulated***

Could landscape architects be replaced by computers? Highly unlikely, but the profession will increasingly be using a wider range of software tools to assist with the development and communication of their design ideas in the future. Static, single viewpoint sketches or perspective drawings can now be brought to life; it is possible to fly over or walk through these virtual landscapes, to modify them and experiment with alternative spatial forms, elements, textures, and lighting, prior to implementation.

An exploration of CAD and animation software was recently undertaken by a group of senior students at Lincoln University to develop and refine a range of design solutions for an inner city public space in Christchurch. The studio is part of a structured sequence of digital applications in the BLA at Lincoln, where students have access to the four main groups of software (office productivity, Geographic Information Systems (GIS), CAD, and graphics including image editing).

This studio class began to explore the world of visionary and unbuilt digital landscapes, the next evolutionary step after 'paper' landscapes. There were two key stages in the studio; the first was to express and resolve a range of options that might give effect to each student's design vision; the second was to communicate this vision to a client. The students found that the animation software enabled them to develop and experiment with their ideas, and communicate their design solution much more persuasively. Any tools that provide for better communication between client and designer help to increase client awareness of the potential of design ideas, and in time will contribute to developing client expectations of high quality design presentation.

Working mainly on computer does not mean, however, that students needed to follow a rigid linear process. Dan Baffsky observed that the studio exposed them to "a diversity of design process, whether derived from intuition,





systematic analysis, inspiration, details or design theory”.

Where this design development process differed from working solely on paper is in the ease of manipulating the 3D model once it is built. It can be viewed from any distance, angle or perspective, enabling a better understanding of the spatial qualities of the design, and refinement of form or detail can be made directly into the computer model. For example, Johnny Then's gold hoop fountain, which was part of his response to the presence of the banking industry around the site, would have been difficult to develop and resolve using traditional methods. He was able to test the idea very easily from a range of perspectives, and could even see how the fountain would look at night time with the lighting design and mist generator in operation.

Reflective comments by students in their design workbooks and diaries showed that they appreciated the precision of CAD, but also valued the early stages of working with pencil. Initial thoughts and ideas expressed in soft, fluid, amorphous pencil or marker lines are “full of potential”, compared to the mathematically precise representation of a line in CAD. Liz Kidson felt that the “...lively movement created from lots of fast (pencil) lines would be lost” if designers attempted to start from scratch on screen.

It was clear that working in a digital environment was more enabling than just using computers as drafting tools. Students found that it encouraged informed self critique, since it is possible to see a representation of design ideas before they are confirmed. Corene Higgins wanted to explore the commodification of public urban places, and appreciated the freedom afforded by the ability to review the experiential qualities of her design. “Unlike the fixed perspective view of traditional drawings, [animation software] gives a sequential movement through the space.” Like Corene, Brent McEwan felt that “The ability to walk through the design to get a true feel for how it works is perhaps the most standout feature.”

Grant Bailey wanted to explore ideas of uplift and disturbance in his design, creating innovative water walls by elevating sections of the tram tracks that used to run through the site. This enabled him to combine the influence of

tectonic forces with the qualities of the aquifer systems underlying the city. Grant found that it “...made it easy to see what materials work together and gave me the scope to change materials and try new ones.” He further observed that the combination of CAD and animation software became a “...great tool for refining the details, as you can chop and change

ideas and experiment”.

Brent also found that this studio enabled him to work faster than usual. “The ease of picking up the ability to use the software, the speed of the programmes, and the ability to make changes without having to redraw the entire scene gives this a huge advantage over traditional methods in terms of time.” Grant similarly made reference to the time factor: “If I had put [my basic design] into the computer earlier on I could have made some design decisions faster.”

Corene speculated about the potential of the animation and rendering software to recapture some of the qualities of those initial pencil lines that are “full of potential”. The depiction of materials texturing the surfaces of the 3D model “...could be used in a more conceptual way that would allow a less realistic finished product, and increased interpretation. Hence, rather than an emphasis on a realistic fully finished design, the design could become layered with ideas.”

The students did not have a completely problem free journey into the digital world, however; several of them reported making some design changes or element omissions due to technical difficulties in creating the desired result. Most experienced a fairly steep learning curve, and found that considerable time was required to become familiar with some aspects of the programme. Many of those did say, however, that with more practice and therefore greater familiarity with the capabilities of the software, they were confident that those barriers to design exploration and greater productivity could be overcome.

The profession faces many opportunities and challenges as it moves into

the new millennium. The opportunities presented by using the digital environment to help design and communicate innovative design solutions may appear to be a challenge to some landscape architects. But as long as there is an awareness of the potentials and pitfalls of working within a digital environment, the profession can move with some confidence into the 21st century. ■

## ACKNOWLEDGEMENTS

Thanks to the following people for helping to make the studio a success: Andy Robertson at Christchurch Polytechnic for tutorial advice above and beyond the call of duty; Larry Mortlock of Lincoln University for patient late night tutorial assistance; and Fiona Greig at Christchurch City Council for supplying the CAD base model.

*Mike Barthelmeh.*

*This studio used AutoCAD and 3D Studio VIZ software, and was a collaborative exercise between Lincoln University and Christchurch Polytechnic. This course is offered as a Summer School at Lincoln. For more information contact Mike Barthelmeh.*

